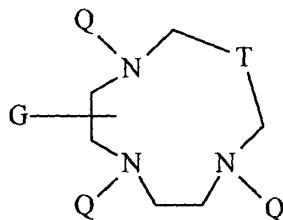


Abstract

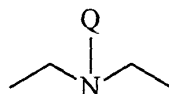
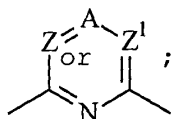
^{225}Ac complexes comprising a functionalized
polyazamacrocyclic chelant compound of the formula I
5 hereinbelow:



(I)

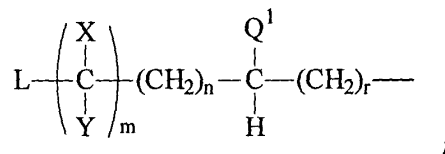
wherein:

T is



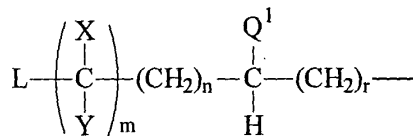
10

G is independently hydrogen or



;

each Q is independently hydrogen, $(\text{CHR}^5)_p\text{CO}_2\text{R}$ or
15 $(\text{CHR}^5)_p\text{PO}_3\text{R}^6\text{R}^7$ or



;

Q^1 is hydrogen, $(\text{CHR}^5)_w\text{CO}_2\text{R}$ or $(\text{CHR}^5)_w\text{PO}_3\text{R}^6\text{R}^7$;

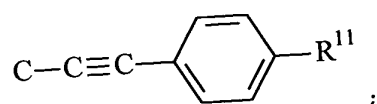
each R is independently hydrogen, benzyl or $\text{C}_1\text{-C}_4$ alkyl;

R^6 and R^7 are independently H, $\text{C}_1\text{-C}_6$ alkyl or $(\text{C}_1\text{-C}_2$
20 alkyl)phenyl;

each R^5 is independently hydrogen; $\text{C}_1\text{-C}_4$ alkyl or
 $(\text{C}_1\text{-C}_2$ alkyl)phenyl;

with the proviso that at least two of the sum of Q and
 Q^1 must be other than hydrogen;

A is CH, N, C-Br, C-Cl, C-SO₃H, C-OR⁸, C-OR⁹N⁺-R¹⁰X⁻, or



Z and Z¹ independently are CH, N, C-SO₃H, N⁺-R¹⁰X⁻, C-CH₂-OR⁸ or C-C(O)-R¹¹;

R⁸ is H, C₁-C₅ alkyl, benzyl, or benzyl substituted with at least one R¹²;

R⁹ is C₁-C₁₆ alkylamino;

R¹⁰ is C₁-C₁₆ alkyl, benzyl, or benzyl substituted with at least one R¹²;

R¹¹ is -O-(C₁-C₃ alkyl), OH or NHR¹³;

R¹² is H, NO₂, NH₂, isothiocyanato, semicarbazido, thiosemicarbazido, maleimido, bromoacetamido or carboxyl;

R¹³ is C₁-C₅ alkyl;

X and Y are each independently hydrogen or may be taken with an adjacent X and Y to form an additional carbon-carbon bond;

n is 0 or 1;

m is an integer from 0 to 10 inclusive;

p is 1 or 2;

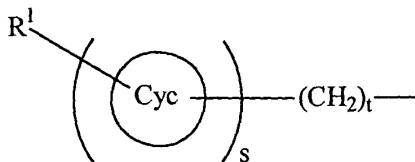
r is 0 or 1;

w is 0 or 1;

with the proviso that n is only 1 when X and/or Y form an additional carbon-carbon bond, and the sum of r and

w is 0 or 1;

L is a linker/spacer group covalently bonded to, and replaces one hydrogen atom of one of the carbon atoms to which it is joined, said linker/spacer group being represented by the formula



wherein:

s is an integer of 0 or 1;

t is an integer of 0 to 20 inclusive;

- 5 R^1 is H or an electrophilic or nucleophilic moiety which allows for covalent attachment to a biological carrier, or synthetic linker which can be attached to a biological carrier, or precursor thereof; and Cyc represents a cyclic aliphatic moiety, aromatic
- 10 moiety, aliphatic heterocyclic moiety, or aromatic heterocyclic moiety, each of said moieties optionally substituted with one or more groups which do not interfere with binding to a biological carrier; with the proviso that when R^1 is H, the linkage to the
- 15 biological carrier is through one of Q or Q^1 ; and with the proviso that when R^1 is other than H, at least one of Q and Q^1 must be $(CHR^5)_p PO_3 R^6 R^7$; and with further proviso that when Q is $(CHR^5)_p CO_2 R$, Q^1 is $(CHR^5)_w CO_2 R$, R is H, R^5 is H, and R^1 is H, then the sum of m, n, p, r,
- 20 s, t, and w is greater than 1;

or pharmaceutically acceptable salts thereof; complexed with ^{225}Ac .